IN THE CLAIMS:

Please substitute the following claims for the same-numbered claims in the application:

1-8 (Cancelled).

9. (Currently Amended) A semiconductor layer for use in a bipolar transistor, said semiconductor layer comprising:

carbon atoms; and

a first ion-implanted doped region that comprises less than all of said semiconductor layer and comprises a dopant interacting with said carbon atoms, wherein said first ion-implanted doped region extends through said semiconductor layer is aligned above a second ion-implanted doped region in a second semiconductor layer,

wherein said carbon atoms limit outdiffusion of said dopant to physically limit a size of said doped region within said semiconductor layer, ~~and~~

wherein said dopant is included ~~in sufficient quantities to reduce~~ at a predetermined peak concentration, and

wherein a combination of said size of said first ion-implanted doped region and said concentration of said dopant is sufficient to reduce a resistance of said semiconductor layer to less than approximately 4 Kohms/cm^2.

10. (Previously Presented) The semiconductor layer in claim 9, wherein said dopant is included in a peak concentration of approximately 1×10^{20} per cm^3 to 1×10^{21} per cm^3.

11. (Previously Presented) The semiconductor layer in claim 9, wherein said dopant comprises one of boron, aluminum, gallium, indium, and titanium.

12. (Previously Presented) The semiconductor layer in claim 9, further comprising silicon germanium.

13. (Currently Amended) The semiconductor layer in claim 9, wherein said semiconductor layer is a boron-doped epitaxial semiconductor layer in which boron is introduced only into a central portion of said semiconductor layer during an epitaxial deposition process and wherein said carbon atoms further maintain said ~~dopant~~ boron within [[a]] said central portion of said semiconductor layer.

14-31. (Cancelled).

32. (Currently Amended) A semiconductor layer for use in a bipolar transistor, said semiconductor layer comprising:

a single crystalline region;

a polycrystalline region adjacent said single crystalline region;

carbon atoms within said single crystalline region and said polycrystalline region; and

a first ion-implanted doped region in said single crystalline region adjacent to said polycrystalline region,

wherein said first ion-implanted doped region extends vertically through said semiconductor layer and is aligned above a second ion-implanted doped region in a second semiconductor layer,

wherein said first ion-implanted doped region comprises a dopant interacting with said carbon atoms,

wherein said carbon atoms limit outdiffusion of said dopant such that a size of said doped region is physically limited within said semiconductor layer, and

wherein said dopant is included ~~in sufficient quantities to reduce~~ at a predetermined peak concentration, and

wherein a combination of said size of said first ion-implanted doped region and said concentration of said dopant is sufficient to reduce a resistance of said semiconductor layer to less than approximately 4 Kohms/cm^2.

33. (Previously Presented) The semiconductor layer in claim 32, wherein said dopant is included in a peak concentration of approximately 1×10^{20} per cm^3 to 1×10^{21} per cm^3.

34. (Cancelled).

35. (Currently Amended) The semiconductor layer in claim 32, wherein said polycrystalline region is positioned adjacent a shallow trench isolation structure in [[a]] said second semiconductor layer.

36. (Currently Amended) The semiconductor layer in claim 32, wherein said semiconductor layer is a boron-doped epitaxial semiconductor layer in which boron is introduced only into a central portion of said semiconductor layer during an eptiaxial deposition process and wherein said carbon atoms further maintain said ~~dopant~~ boron within [[a]] said central portion of said semiconductor layer
~~between two contacts~~.

37. (Previously Presented) The semiconductor layer in claim 32, wherein said carbon atoms reduce strain within said semiconductor layer.

38. (Currently Amended) A semiconductor layer for use in a bipolar transistor, said semiconductor comprising:

a single crystalline region;

a polycrystalline region adjacent said single crystalline region;

a first ion-implanted doped region in said single crystalline region adjacent said polycrystalline region, wherein said first ion-implanted doped region extends vertically through said semiconductor layer and is aligned above a second ion-implanted doped region in a second semiconductor layer; and,

carbon atoms within said single crystalline region and said ~~ploycrystalline~~ polycrystalline region;

wherein said carbon atoms limit outdiffusion of said dopant such that a size of said first ion-implanted doped region within said semiconductor layer is physically limited ~~to increase breakdown voltage~~ in order to limit a voltage-to-failure distribution to no greater than approximately 12 volts and no less than approximately 10 volts.

39. (Previously Presented) The semiconductor layer of claim 38, wherein said dopant is included in a peak concentration of approximately 1×10^{20} per cm^3 to 1×10^{21} per cm^3.

40. (Cancelled).

41. (Previously Presented) The semiconductor in claim 38, wherein said polycrystalline region is positioned adjacent a shallow trench isolation structure in a second semiconductor layer.

42. (Currently Amended) The semiconductor layer of claim 38, wherein said semiconductor layer is a boron-doped epitaxial semiconductor layer in which boron is introduced only into a central portion of said semiconductor layer during an eptiaxial deposition process and wherein said carbon atoms further maintain said ~~dopant~~ boron within [[a]] said central portion of said semiconductor layer ~~between two contacts~~.

43. (Previously Presented) The semiconductor layer in claim 38, wherein said carbon atoms reduce strain within said semiconductor layer.